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RESEARCH ARTICLE

A Copyright Tagging on Android Platform to Prevent Piratical Behavior of Images

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Abstract*— Camera Smartphone in recent years has become a very popular consumption electronic product. Young people like to share their images and information with each other'smoreover, they also like to record their day by day lives. However, the photos may be used without approve after they are uploaded to internet. To avoid this problem, one can do the watermarks into the images with embedded visible and invisible watermarks. Before the image is uploaded, the additional process for embedding watermark should be performed. If the photos are large in number, the process of embedding watermark will irritate the user. Thus in this paper, we propose a copyright embedding system for android platform. Using this system already specified copyright information is automatically embedded into photos with digital watermark technology when these photos are taken. In addition to this, images without watermarks can be retain selectively. It has some following features:(1) complexity is possibly reduced for handheld mobile system of watermark embedding process;(2) the watermark can be origined without the use of the original image;(3) the watermark embedded into an image would not be detached by commonly used image processing operations; (4) embedding copyright information, relocate the images, and uploading images to internet are automatically performed without manual interference.Therefore, the protection of the photographs taken by Android phones is to prevent piratical behaviors.

I. INTRODUCTION

A smart phone is basically similar to a mobile phone with some advanced features included. Earlier the smart phones had features like digital camera, media player, GPS etc. but recently the smart phones which are being developed consist of new features like Touch screen, Wi-Fi. Nowadays the smartphones which are developed are in big use and has gained a high market price value.

Currently developed smartphones are largely run on Android platform. It is an open source platform that means any user having knowledge about android can make use of it and even make changes for development of new applications. Young people are willingly

using these smartphones as they (smart phones) have various new features included, by which it becomes easier to communicate with the rest of the world through social networking sites. one person can share data with other person. Uploading of data or photos on social networking sites or any website without any security can be very dangerous. Thus it necessary to watermark the data or the image for higher level of protection. A numeric representation of a 2-dimensional image represents a digital image. Watermark is a pattern in paper which can be visible only when viewed by transmitted light produced by wideness in the paper. Hiding digital data into a signal is called watermarking. Digital watermarking can be used to provide protection for the digital images when they are been exposed to the rest of the world to prevent image piracy. Digital watermarking is a method of inserting data into image records. The image which is watermarked can still be demonstrated and the embedded information is used for the authentication of owner. For various right management applications digital watermarking is widely considered all over. In case if a copy of any work is found then the watermark embedded will be regained and the original source will be identified. In order to prevent copy prevention, digital watermarking can be used to insert information or data which can be easily detected by hardware or software devices to avoid illegal use of the data. Numbers of other applications make use of watermarking concepts which include authentication, transaction tracking, device control etc. there are two types of watermarks one is visible watermark and the other is invisible watermark. A visible watermark is the one in which the watermark embedded is visible to the human eye and invisible watermark is not easily seen with naked eyes.

We can also use the concept of Steganography here. Steganography is a technique in which one image or data can be masked or concealed inside another image or file or data. The masked image can then be watermarked with any licensed information to prevent its piracy. In this paper we propose a new copyright embedding system. By using this system the copyright data is now been embedded into images with the help of digital watermarking technique when the images are captured. We can hide one data or image into other data or image without affecting the quality of the original image. Embedding of information into the pictures then uploading the picture on internet after resizing it as required is a process which is habitually accomplished. Thus the system we are proposing is a suitable system for the security of the snapshots or pictures captured by the android smartphones to avert piratical actions.

II. LITERATURE SURVEY

On smart phone platform, Androidhas populated among hardware manufacturers in recent years. Its open market model allows software developers to buildapplications for Android mobile devices in Java and listed in Android Market without taking any review and waiting for approval. Users can download from a particular store of smart-phone applications at Google Market,in this many of which connect with existing Google services. Android is developed on Linux version 2.6 to operate core system services like security,memory and process management.Twomain working principles of android system is that,An app do not killed by android, i.e. apps keep running even after you switch to other apps and An apps killed by android when the memory use goes too high, but it saves app state for quick restart later on. Android provides a set of libraries, Android runtime and a various application framework. For application developers, the Android SDK serves the tools and APIs necessary to develop applications on the Android platform using JDK environment. Media codecs for Android is that it can play video and audio and play backrecords in a various formats according to AAC, VLC, AVC, MP3, andMPEG-4 files players. Android Operating System was made available from the 22nd of October 2008 to the user market.l March 2009 2,000 applications, March 2010 40,000 applications.Flexible, adaptable&reliable, Android's facility in supporting screen-based interfaces has also made it the OS of choice for many IT industrial, consumerelectronics, including navigation devices, set-top boxes, medical equipment, netbooks, tablets, and e-readers.

III. PROPOSED SYSTEM

Before some years ago, Mobile and smart phone devices are used for only sending message, playing video/audio, internet browsing etc. but nowadays, smart phones are introducing with incredible changes such as image publishing etc. Nowadays as technology changing as day by day, many apps are available in market like Whatsapp, Wechat, Hike, Facebook messenger .Peoples are using this social networking applications to connect with other relatives, friends. They are sharing audio, video, images from the social networking,

while doing this security is the main issue to avoid misuse of our images. So, there is very important to provide protection to images to avoid loss of information like as ownership information. Prevent images from those people which do not have any access authentications or rights of authority. This can be achieved byapplying digital watermark embedding the information into image. This technique is mostly use to identify the patent of the copyright of such image. Watermarking means hide digital data in a images. Digital watermark is use to verify the authentication of image or to show the identity of its Author or Owner.

One of the applications of digital watermarking is tracking the source. Later if any work copy found, then we can retrieveinformation (watermark) from copy and source of the distribution is known. Likewise we can also find the source of illegally copied images.Bit-Plane Complexity Segmentation (BPCS)watermarking is newstenographic technique, which has large capacity of information hiding. This algorithm replaces the complex bits of bit plane of color image which cannot recognize by human eyes or any statistical analysis.

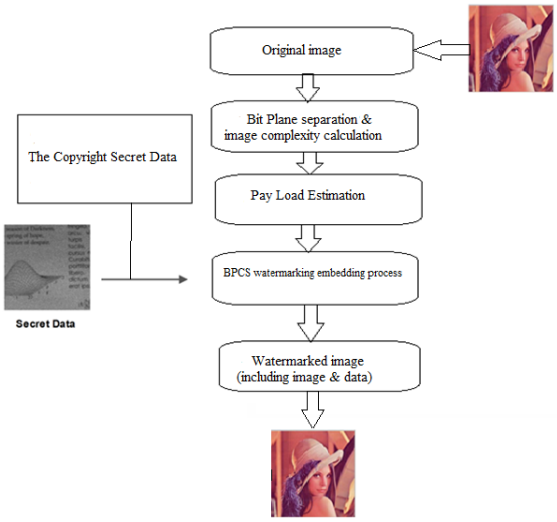

Fig 1. Flow diagram for BPCS watermarking

Working of BPCS Watermarking algorithm is as follows:

1) The source image is divided into 8 different Bit-Planes. All the bit-planes are divided into small pieces of the same size, which is called bit-plane blocks, such as 8 ×8. (Shown in Fig 2.)

2) Calculate the complexity of every block. The Complexity is defined as the amount of all the adjacent Pixels that get different values (one pixel is 0 and the other is 1). The maximum possible value of the complexity is denoted as max C.

3) Setting the complexity threshold of the bit-plane Block is C_max, here α is a parameter. The bit-plane block whosecomplexity is larger than C_max is used to embed Secret information. The smaller the value of c, the more Secret data can be embedded.

4) This secret data is formed into bit-plane blocks. After checking the complexity, if the complexity of each plane is Greater than threshold value (i .e. max_α). Then replace those bits using our secrete data bits. This will not effect on our source image.

5) This process is done for all bit planes. After embedding information into our image then wrap all the bit planes. This will gives us new embedded image. (Shown in Fig 3.)

6) Extraction of watermarking is same as embedding process up to splitting of planes, and then we will check the complexity of each bit plane, if we found that, plane is complex then we will extract those bits. This will give us our secret data.

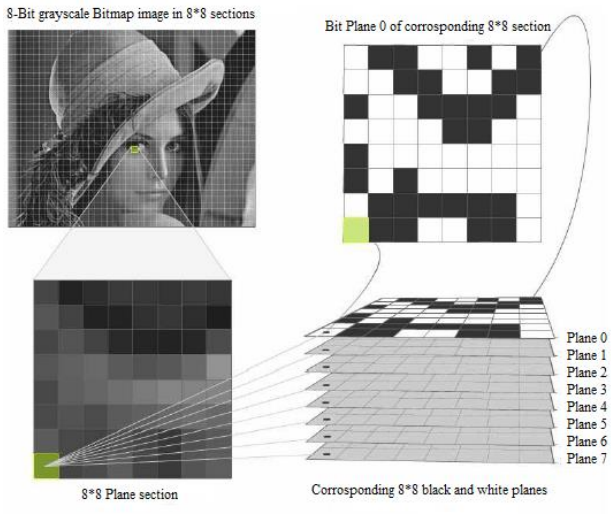

Fig 2.Bit Plane Separation

Fig 3.Image before & after BPCS watermarking

IV. CONCLUSION

We propose this paper to develop an android application for android OS(2.2 or later) that reads input image and affect it with watermarking (visible or invisible)Supported file format are: .jpg,bmp etc…Using this system, pre-specified copyright information isautomatically embedded into pictures with digital watermark technology when these pictures are taken on the cellphone. In addition, original images (i.e., images without modification) can be sealed selectively. This system has following features: (1) this approach of watermarking is based on BPCS algorithm and the watermark embedding process;(2) the watermark can be taken out without harming the source image; (3) the watermark put into an image would not be removed by commonly used image processing operations;(4) embedding copyright information, resizing the images, and uploading the images to Internet are automatically performed without instruction manual interfering. This system is appropriate for the protection of the photographs taken by Android phones to prevent piratical behaviors.

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